

Histamine is naturally found in cells of our bodies for release in response to inflammation, injury, infection or allergens.



Low Histamine Diet Guidelines

What is histamine?^{1,2}

If you have ever experienced a runny nose, itchy and watery eyes, sneezing and congestion due to a cold or allergies, then you're familiar with the well-known effects of histamine. Histamine is a chemical that is naturally found in the cells of our bodies (including immune cells, intestinal cells and the brain), but can also be found in varying amounts within foods. Foods that are high in histamine include those that require microbial fermentation (e.g. wine, sauerkraut and certain cheeses). Some other foods may not actually contain histamine, but are referred to as histamine-liberators, as they can stimulate the release of histamine.

Histamine is essential, and its release from immune cells (e.g. mast cells) is triggered by inflammation, injury, infections or allergens. Further to this, it can act in the brain to promote wakefulness, and is involved in relaxing blood vessels. Because of these other functions, symptoms of high histamine (due to a reduced ability to break histamine down, or its excessive release by the immune system) are not limited to "classic" allergy symptoms, but can also include headaches, low blood pressure, irritability and sleeplessness.

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Signs and symptoms of high histamine levels

Whatever the source of histamine, when the total body level exceeds the enzymes' capacity to break it down, symptoms of histamine excess occur. Histamine intolerance manifests itself in a variety of signs and symptoms. Not all of these symptoms occur in any single individual, and the severity of symptoms varies, but the pattern of symptoms seems to be consistent for each person.

SYMPTOM CHECK LIST FOR HIT

- ☐ Headaches/migraines
- ☐ Asthma
- ☐ Itching – skin, nose, eyes, ears
- ☐ Puffy eyes
- ☐ Tissue swelling – face, throat
- ☐ Facial flushing
- ☐ Hives
- ☐ Hayfever, nasal congestion, runny nose
- ☐ Cough
- ☐ Insomnia
- ☐ Fatigue, irritability, confusion
- ☐ Palpitations/racing heart
- ☐ Anxiety/panic attack
- ☐ Abdominal pain, gas, bloating
- ☐ Premenstrual cramps

Why have I been recommended a low histamine diet?

Approximately 1% of the population experience adverse reactions and intolerance to histamine. This can be caused by low levels of the enzymes we make in our bodies to break histamine down – diamine oxidase (DAO) and histamine N-methyl transferase (HNMT) – leading to an excess of histamine in our blood.³

Anyone can have histamine intolerance (HIT). With healthy gut defenses, people can normally handle quantities of histamine in foods. However, more and more of us have compromised gastrointestinal systems, while others have the aforementioned enzyme deficiencies, and so have difficulty with even small quantities of histamine. Plus, if you are consuming large amounts of high histamine foods and alcohol that blocks histamine breakdown, or medications that do the same, then you are also at higher risk of HIT.

If too much histamine makes its way from foods into your bloodstream, it can cause a wide variety of unpleasant symptoms (often mimicking allergies, but also include mood changes).²

Examples of high histamine diets include the gut and psychology syndrome (GAPS) diet, low-carb diets and diets rich in gourmet or fermented foods. This is because histamine is found primarily in aged, fermented, cured, cultured and smoked foods.²

Risk factors for HIT²

- 80% of HIT sufferers are middle-aged females
- Gastrointestinal damage (Crohn's, coeliac, intestinal surgery, chemotherapy)
- Deficiencies in vitamin B6, vitamin C, zinc or copper
- Genetic abnormalities in DAO
- Taking a medication that interferes with histamine metabolism

Influences on histamine²

Common reasons why we might have different reactions to the same food on different days:

- some medications interfere with DAO activity, including anti-inflammatory medications
- oestrogen stimulates histamine production
- stress and physical injury trigger immune cells to release histamine and other pro-inflammatory substances
- alcohol interferes with DAO activity
- histamine is accompanied by a posse of other biogenic amines that can worsen our response to histamine.

Foods to eat and avoid¹⁻⁸

Nearly all foods contain a small amount of histamine, so it's impossible to completely avoid it. However, some foods are much higher in histamine than others, and histamine levels in the same types of foods vary greatly. For example, like other animal foods, fresh tuna is very low in histamine whereas levels in canned tuna can range up to 40.5mg/kg.

A positive change in symptoms should be noticed after about four weeks of eliminating histamine-rich foods from the diet. HIT sufferers have different thresholds, i.e. tolerance levels, so the next step after completing a successful elimination diet is to establish your threshold level, with the aim of gradually improving it over a period of time.



Low Histamine Diet Guidelines

Table 1. Foods to eat and avoid¹⁻⁸

High histamine foods	Moderate histamine foods	Low histamine foods
Protein		
Processed meats - bacon, sausage, deli meats, salami, pepperoni, chorizo	Frozen meats	Fresh seafood (wild caught, gutted and cooked within half an hour)
Aged, canned, cured, smoked meats/fish	Eggs (mainly whites)	Fresh beef, lamb, pork, rabbit
Leftover meats - bacteria quickly act on protein at room and refrigerator temperatures, resulting in histamine production		Fresh chicken, turkey, duck
All fermented milk products, including aged and processed cheese (such as cheddar, cheshire, colby, blue cheese, brie, camembert, feta, cottage, ricotta, cheese slices, cheese spreads, goat cheese)	Cottage cheese, sheep cheese	Cream, sour cream, yoghurt, butter milk, cream cheese, cow milk (consumed quickly after opening), whey powder
Grains		
	Amaranth	Corn
	Buckwheat	Millet
	Soy	Oats
		Quinoa
		Rice
		Rye
		Spelt
		Wheat
Vegetables		
Avocado/guacamole	Artichoke	Asparagus
Cocoa/chocolate	Celery	Beetroot
Fermented foods - sauerkraut, kombucha, miso, pickles, relishes	Chilli	Bok choy
Legumes - chickpeas, soy beans, red beans	Cucumber	Broccoli
Olives in vinegar or brine	Eggplant	Brussel sprouts
Tomatoes and tomato products/sauces	Garlic	Cabbage
Spinach	Green beans	Carrots
	Lettuce (mixed, bagged)	Cauliflower
		Garlic
		Kale
		Leeks
		Lettuce
		Squash
		Sweet potato
		Turnip
		Zucchini

Low Histamine Diet Guidelines

Table 1. Foods to eat and avoid continued...¹⁻⁸

High histamine foods	Moderate histamine foods	Low histamine foods
Fruits		
Bananas	Apples	Apricots
Grapefruit (citrus fruit liberate histamine)	Dates/figs	Blackberries
Kiwi	Grapes	Blueberries
Lemon (citrus fruit liberate histamine)	Nectarines	Cherries
Lime (citrus fruit liberate histamine)	Papaya	Melon
Mango	Peaches	Plum
Oranges (citrus fruit liberate histamine)	Pears	Raspberries
Pineapple	Pomegranate	
Strawberries (strawberries liberate histamine)	Watermelon	
Tangerines (citrus fruit liberate histamine)		
Fats (eating)		
Pine nuts	Almonds	Coconut (fresh)
Peanuts	Brazil nuts	Chia seeds
Sesame seeds	Cashews	Extra-virgin olive oil
Sunflower seeds	Flax seeds	Flaxseed oil
Walnuts	Macadamias	
	Pecans	
	Pepitas	
	Pistachios	
Fats (cooking)		
	Cocoa butter	Animal
	Margarine	Coconut oil
	Pumpkin seed oil	Extra-virgin olive oil
	Sesame oil	Ghee
Condiments		
Curry powder	Cream of tartar	Coconut/MCT oil
Nutmeg, anise, cinnamon, cloves	Mustards	Honey
Horseradish	Parsley	Salt
Pesto		Sugar
Vinegars		
Drinks		
Alcohol	Almond milk	Water (plain)
Chocolate, cocoa, cola drinks	Kombucha	Herbal teas (except green tea)
Coffee	Lemonade	Milk (cow)
Black/green tea	Oat milk	Rice milk
Energy drinks		
Soy milk		
Water (flavoured)		

Low Histamine Diet Guidelines

Table 2. Example of a three day meal plan

	Day 1	Day 2	Day 3
Breakfast	Quinoa or oat-based porridge with milk or rice milk topped with raspberries	Scrambled eggs on toast	Whey protein shake
Snack	1 apple	Carrots sticks	Rice crackers with cream cheese
Lunch	Seafood or chicken rice paper rolls (fresh)	Salad and turkey sandwich made on wholegrain rye bread (no tomato)	Egg and tabouli (without tomato or lemon juice) sandwich
Snack	Blueberries with coconut yoghurt	Corn crackers with beetroot dip	Chia seed pudding
Dinner	Pan-seared chicken breast, roast potato and vegetables	Beef stir-fry with veggies and steamed rice	BBQ meat and salad



Online resources

Food intolerances app by Baliza GmbH

– <https://itunes.apple.com/au/app/food-intolerances/id419098758?mt=8>

The Victus nutrition platform for menu planning and recipes

– <https://www.victushealth.com/>



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